Physicsaholics

**DPP – 1 (Work, Energy & Power)**

Q 1. A man pushes a wall and fails to displace it. He does
(a) Negative work
(b) Positive but not maximum work
(c) No work at all
(d) Maximum work

Q 2. A body of mass 5 kg at rest is under the action of a force which gives it a velocity given by v=3t m/s, here t is time in seconds. The work done by the force in two seconds will be:
(a) 90 J
(b) 45 J
(c) 180 J
(d) 30 J

Q 3. A force $\vec{F} = (5\hat{\imath} + 3\hat{\jmath} + 2\hat{\jmath})$N is applied over a particle which displaces it from its origin to the point $\vec{P} = (2\hat{\imath} - \hat{\jmath})$m. The work done the particle in joules is:
(a) 10 J
(b) 7 J
(c) -7 J
(d) 13 J

Q 4. A force of $(4x^2 + 3x)$N acts on a particle which displaces it from $x = 2m$ to $x = 3m$. The work done by the force is
(a) 32.8 J
(b) 3.28 J
(c) 0.328 J
(d) zero

Q 5. A constant force F = $(\hat{\imath} + 3\hat{\jmath} + 4\hat{k})$ N acts on a particle and displace it from (-1m ,2m ,1m) to (2m ,-3m ,1m):
(a) 10 J
(b) 13 J
(c) -7 J
(d) -12 J

Q 6. If force $\vec{F} = (3x\,\hat{\imath} + y^2\,\hat{\jmath})$ N is acting on a body and body moves from (1m, 2m, 1m) to (3m, 3, 8m), then find the work done due to the force
(a) $\frac{55}{3}$ J
(b) $\frac{22}{3}$ J
(c) $\frac{11}{3}$ J
(d) $\frac{31}{3}$ J

Q 7. A constant force $\vec{F} = (\hat{\imath} + 3\hat{\jmath} + 4\hat{k})$N acts on a particle and displace it from (-1m, 2m, 1m) to (2m, -3m, 1m)
(a) 8 J
(b) -12 J
(c) -4 J
(d) 11 J

Q 8. Calculate work done in moving the object from x=2 to x=3m from the graph shown here
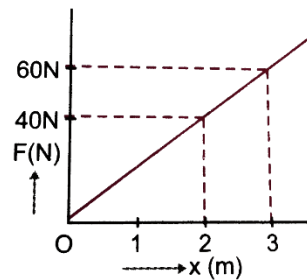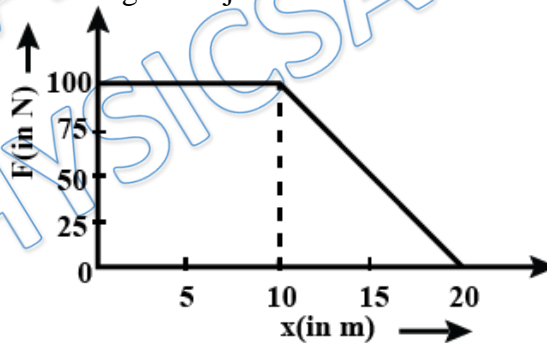
(a) 20 J   (b) 90 J
(c) 40 J   (d) 50 J

Q 9. A Force F acting on an object varies with distance x as shown in the figure. The work done by the force in moving the object from x=0 to x=8m is
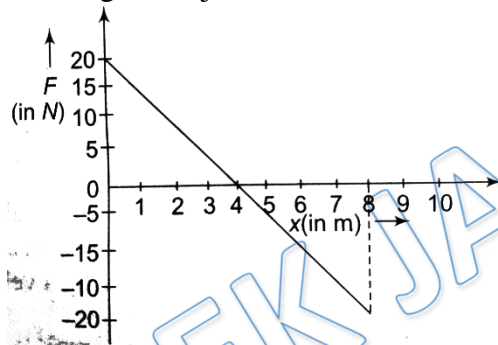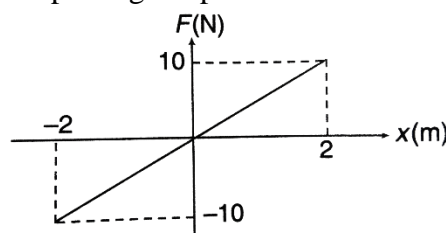

(a) Zero J   (b) 80 J
(c) -40 J   (d) 40 J

Q 10. A force F acting on an object varies with distance x as shown in the figure. The work done by the force in moving the object from $x = 0$ to $x = 20$ m is

(a) 500 J   (b) 1000 J
(c) 1500 J   (d) 2000 J

Q 11. A force (F) acting on a particle varies with the position x as shown in figure. Find the work done by force in displacing the particle from x = -2m to x = 0?

(a) 10 J   (b) -10 J
(c) 4 J   (d) -4 J

Q 12. A body of mass 3 kg is under a force, which causes a displacement in it is given by $S = \frac{t^3}{3}$ (in m). Find the work done by the force in first 2 seconds
(a) 2 J   (b) 3.8 J
(c) 5.2 J   (d) 24 J

Answer Key

Q.1 c	Q.2 a	Q.3 b	Q.4 a	Q.5 d
Q.6 a	Q.7 b	Q.8 d	Q.9 a	Q.10 c
Q.11 b	Q.12 d			